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EXAMINER

CANTELMO, GREGG

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 08/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/727,748

Applicant(s)

HARIDOSS ET AL.

Examiner

Gregg Cantelmo

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed April 13, 2001 has been placed in the application file and the information referred to therein has been considered as to the merits.

### ***Drawings***

2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. These figures are discussed in the background art and appear to be drawn to that which is old in the fuel cell art.

### ***Specification***

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Review of the claims discloses compositions which further include an oxide material. The abstract while satisfactory with respect to claim 1, does not briefly disclose the mixture of ingredients of other significant components to the composition. Therefore the abstract appears to lack a concise statement of the technical disclosure of the patent application.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. patent No. 4,017,663 (Breault).

Breault discloses a fuel cell electrode comprising a catalyst and a non-electrolytic material different than the catalyst (col. 2, line 66 through col. 3, line 5 and prior art claim 6 as applied to claim 1).

The catalysts are Pt and Ru which are capable of catalyzing oxidation of a fuel cell gas and capable of undergoing reversible oxide formation (col. 3, ll. 1-2 as applied to claims 2, 4, and 5).

The fuel cell gas inherently comprises hydrogen (as applied to claim 3).

The composition of the electrode comprises 32 weight percent of each of the Pt and Ru catalysts (col. 3, ll. 1-2 as applied to claim 6).

The non-electrolytic material in this example is 20 weight percent Teflon i.e., polytetrafluorethylene (col. 3, ll. 3 as applied to claims 7, 8 and 10).

Alternatively the non-electrolytic material can be FEP-120 which is a copolymer of tetrafluoroethylene and hexafluoropropylene (col. 2, ll. 55-60 as applied to claims 8 and 9).

A first resistant material of tungsten oxide is also present in the electrode mixture. The noble metal catalyst is mixed with the tungsten oxide. Since the material is the same as those set forth in the species of the instant claims, the tungsten oxide in the prior art composition is expected to have the same properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562

F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). See col. 3, ll. 3 and col. 3, ll. 26-31 of Breault as applied to claim 11, 12, 14 and 15.

The catalyst load is 0.25 mg/cm<sup>3</sup> (col. 3, ll. 40-45 as applied to claim 13).

The composition comprises a catalyst, a first material resistant to oxidation up to about 3.0 V vs. SHE, wherein the catalyst and the first material compose a fuel cell electrode (prior art claim 8 as applied to claim 16).

The catalyst load is 0.25 mg/cm<sup>3</sup> (prior art claim 8 as applied to claim 13).

The first material is tungsten oxide (as applied to claims 19 and 20).

The composition comprises: a catalyst capable of catalyzing oxidation of a fuel cell gas, a first material resistant to oxidation up to about 3.0 V vs. SHE, and a non-electrolytic material, wherein the catalyst, first material and non-electrolytic material compose a fuel cell electrode (prior art claim 8 as applied to claim 21).

The catalyst is platinum (prior art claim 8 as applied to claim 22).

The first material is tungsten oxide (prior art claim 8 as applied to claim 23).

The non-electrolytic material is PTFE (prior art claim 8 as applied to claim 24).

6. Claims 1-8 and 10-12 14-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. patent No. 5,945,231 (Narayanan).

Narayana discloses a fuel cell electrode comprising a catalyst and a non-electrolytic material different than the catalyst (col. 4, ll. 1-4 as applied to claim 1).

The catalysts include Pt and Ru (col. 3, ll. 31-36) which are capable of catalyzing oxidation of a fuel cell gas and capable of undergoing reversible oxide formation (as applied to claims 2, 4, and 5).

The fuel cell gas inherently comprises hydrogen (as applied to claim 3).

The composition of the electrode comprises 7-10 percent of the catalyst (col. 4, ll. 1-4 as applied to claim 6).

The non-electrolytic material in this example is 15-20 percent Teflon i.e., polytetrafluorethylene (col. 4, ll. 1-4 as applied to claims 7, 8 and 10).

Zirconium oxide is another material for the catalysts (col. 9, ll. 25-38). A first resistant material of zirconium oxide is also present in the electrode mixture. The noble metal catalyst is mixed with the tungsten oxide. Since the material is the same as those set forth in the species of the instant claims, the zirconium oxide in the prior art composition is expected to have the same properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). See col. 3, ll. 3 and col. 3, ll. 26-31 of Breault as applied to claim 11, 12, 14 and 15.

The composition comprises a pt catalyst and a first material of zirconium oxide the combination compose a fuel cell electrode (col. 9, ll. 25-38 as applied to claims 16, 17, 19 and 20).

The composition comprises a catalyst (Pt or Ru) which is capable of catalyzing oxidation of a fuel cell gas, a first material of zirconium oxide which is resistant to oxidation up to about 3.0 V vs. SHE, and a non-electrolytic material of PTFE (col. 9, ll. 25-37 and col. 4, ll. 1-4 as applied to claim 21).

The catalyst comprises platinum (as applied to claim 22).

The first material comprises an oxide of zirconium (as applied to claim 23).

The non-electrolytic material comprises PTFE (as applied to claim 24).

7. Claims are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. patent No. 4,847,173 (Mitsunaga).

The catalyst layer is composed of catalyst powder and a binding agent. The catalyst powder consists of fine particles of platinum which is carried on the surface of carbon powder. For the binding agent, fluorine-containing resins such as polytetrafluoroethylene (PTFE), copolymers of tetrafluoroethylene/hexafluoropropylene (hereinafter referred to simply as "FEP"), and others are suitable (col. 3, ll. 13-20 as applied to claims 1-5 and 8-10).

### ***Conclusion***



8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPAT 5,712,062 discloses fuel cell electrodes having a noble metal catalyst, fluoride based resin. USPAT 5,939,220 discloses a composition for use in a fuel cell comprising a noble metal and tungsten oxide.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

gc

  
Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700

July 31, 2002